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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,565	01/06/2006	Keisuke Funaki	283189US8PCT	3738

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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER
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FERGUSON, LAWRENCE D

ART UNIT	PAPER NUMBER
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1783

NOTIFICATION DATE	DELIVERY MODE
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05/27/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/563,565	<b>Applicant(s)</b> FUNAKI ET AL.	
	<b>Examiner</b> Lawrence D. Ferguson	<b>Art Unit</b> 1783	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-20 is/are rejected.
- 7) ☒ Claim(s) 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. This action is in response to the amendment filed February 19, 2010. Claims 1, 7 and 13 were amended and claim 21 was added rendering claims 1 and 3-21 pending.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Claim Rejections – 35 USC § 103(a)***

3. Claims 1, 3 and 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirai et al (U.S. 6,664,313) in view of Nodera et al (U.S. 6,001,929).

Hirai discloses a light reflection composition (sheet) having a thickness of 2mm comprising polycarbonate resin composition containing titanium oxide, where the composition has a light reflectance of not less than 90% and a light transmittance of not more than 0.3% (column 1, line 62 through column 2, line 14 and column 10, lines 42-48). The content of titanium oxide is in the range of 3 to 30 parts by weight based on 100 parts by weight of the polycarbonate resin (column 4, lines 50-52). The composition of Hirai further comprises 0.01 to 9 parts by weight of a polyorganosiloxane polymer, along with 9 parts by weight and 5 parts by weight of additional material (column 2, lines

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7-17) where the maximum parts by weight of the titanium oxide and additional materials combine to have 44 parts by weight, which results in the polycarbonate and polyorganosiloxane copolymer materials having 56 parts by weight per 100 parts by weight of the composition. The titanium oxide of Hirai would inherently have a surface acid amount and surface base amount and it would have been obvious to one of ordinary skill in the art to employ the surface acid and surface base amounts of the titanium oxide in any amounts, including the claimed amounts. Because the composition of Hirai contains a single layer of material, the composition is construed as a sheet.

Although Hirai discloses a polycarbonate resin and a polyorganosiloxane polymer, the reference does not disclose a polycarbonate-polyorganosiloxane copolymer. Nodera teaches it is known for a polycarbonate resin to comprise a mixture of a polycarbonate- polyorganosiloxane copolymer and polycarbonate resin (column 1, lines 32-36). Hirai and Nodera are combinable because they are related to a similar technical field, which is polycarbonate resin compositions. It would have been obvious to one of ordinary skill in the art to substitute the mixture of a polycarbonate-polyorganosiloxane copolymer and polycarbonate resin of Nodera for the polycarbonate resin and polyorganosiloxane polymer of Hirai to achieve the predictable result of improving the flame retardance of the polycarbonate material (column 1, lines 32-36 of Nodera), as in claim 1.

Regarding claim 3, the polycarbonate resin composition excel in flame retardancy, including the thin test pieces which pass the level of V-0 in a flame test (column 15, lines 16-20). In claim 3, the phrase, "in a vertical flame retardant test

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according to a UL94 method" introduces a process limitation to the product claim. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966. Further, process limitations are given little patentable weight in product claims.

Regarding claims 5-6, Hirai discloses a molding article (column 1, line 66 through column 2, line 3). In claims 5 and 6, the phrases, "prepared by heating the light reflection sheet at a temperature of 160 to 200°C and then thermally molding it at a spreading magnification of 1.1 to 2 times" and "prepared by thermally molding the light reflection sheet" introduces process limitations to the product claims. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966. Further, process limitations are given little patentable weight in product claims. Because Hirai does not disclose the molded article is uneven, the article meets the limitation of having an unevenness of 0.0.

### ***Claim Rejections – 35 USC § 103(a)***

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hirai et al (U.S. 6,664,313) in view of Nodera et al (U.S. 6,001,929).

Hirai and Nodera are taken as above. Hirai discloses extrusion molding the polycarbonate resin composition (column 10, lines 42-56) where it would have been expected to one of ordinary skill in the art for the molded composition to be dried prior to extruding and molding, so the material can be shaped. The material could not be shaped properly in an undried state. Additionally, although Hirai does not teach the temperature or time of the processes, because the reference discloses the same sheet material for the same purpose (light reflection), it would have been obvious to one of ordinary skill in the art for the drying temperature, time and molding/rolling temperature to be met in the manufacturing of the light reflection sheet of Hirai.

***Claim Rejections – 35 USC § 103(a)***

5. Claims 7-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirai et al (U.S. 6,664,313) in view of Nodera et al (U.S. 6,001,929) further in view of Ekinaka et al (U.S. 6,846,567).

Hirai and Nodera are taken as above. Hirai does not disclose a light fast layer. Ekinaka teaches a coating layer formed on the surface of a molded polycarbonate substrate (column 3, line 66 through column 4, line 10), where the coating comprises an acrylic resin and a light stabilizer and/or ultraviolet absorber component (column 11, line 60 through column 12, line 6) and the coating layer has a thickness of 0.1 to 10 $\mu$ m (column 12 lines 36-41). The ultraviolet absorbent component contains a benzophenone base compound (column 10, lines 55-67). Hirai and Ekinaka are combinable because

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they are related to molded polycarbonate sheets. It would have been obvious to one of ordinary skill in the art to have coated the coating material (light fast layer) having an acrylic resin and light stabilizer on the polycarbonate light reflection sheet of Hirai to achieve the predictable result of improving the weatherability and durability of the polycarbonate sheet (column 2, lines 25-28) as taught in Ekinaka, as in claims 7-9 and 18. In claim 7, the phrase, "cuts or absorbs a UV ray in a thickness of 0.5 to 20um on at least one face of a base sheet" introduces a process limitation to the product claim. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966. Further, process limitations are given little patentable weight in product claims. In claim 8, the term "polymerizable" constitutes a 'capable of' limitation and that such a recitation that an element is 'capable of' performing a function is not a positive limitation but only requires the ability to so perform.

Regarding claims 10 and 16, Hirai discloses a light reflection composition (sheet) having a light reflectance of not less than 90% (column 10, lines 42-48). In claims 10 and 16, the phrase, "measured by irradiating the surface of the light-fast layer with light of a visible light region wavelength" introduces a process limitation to the product claim. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a

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different process.” In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966. Further, process limitations are given little patentable weight in product claims.

Regarding claims 11, 17 and 19, because Hirai and Ekinaka comprise the same material (light reflecting sheet and light fast layer) as Applicant, it would have been expected to one of ordinary skill in the art for a color difference of 5% or less of the light fast layer between before and after irradiation of the light fast layer and for a difference between a total reflectance to be 4% or less. In claims 11 and 19, the phrase, “irradiating the surface of the light fast layer with a UV ray in an energy amount of 20 J/cm by means of a high pressure mercury lamp is 10 or less” introduces a process limitation to the product claim. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966. Further, process limitations are given little patentable weight in product claims.

Regarding claims 12 and 20, Hirai discloses a molding article (column 1, line 66 through column 2, line 3). In claims 12 and 20, the phrase, “obtained by thermally molding the light reflecting sheet” introduces a process limitation to the product claim. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a



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different process.” In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966. Further, process limitations are given little patentable weight in product claims.

Regarding claims 13-15, Ekinaka teaches a layer comprising silica particles (diffusion layer) having a diameter and dispersed in a solvent (column 13, lines 18-21) such as acryl resin. Although the reference does not disclose the exact diameter or mass percentage of the particle, a particle diameter and mass percent are optimizable. It would have been obvious to one of ordinary skill in the art to optimize the particle size and mass percent of the diffusion layer because discovering the optimum or workable range involves only routine skill in the art. The particle size and mass percent of the silica particles directly affect the mechanical strength of the diffusion layer. *In re Aller* 105 USPQ 233 and see *In re Boesch*, 617 USPQ 215. Additionally, it would have been obvious to increase the particle size of the silica particles in the diffusion layer of Ekinaka to improve the reflecting properties of the diffusing layer. Because claim 14 only requires organic particles or inorganic particles, the Examiner is examining claims 14 and dependent claim 15 based upon an inorganic particle.

6. Claim 21 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The closest prior art does not teach or suggest the recited light reflection sheet further including 0.05 to 2.0 parts by mass, per 100 parts by mass of the total of (A) and (B), of (D) an organosiloxane different from the polyorganosiloxane of (A-1).

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The prior art does not teach motivation or suggestion for modification to make the invention as instantly claimed.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hongo et al (U.S. 4,877,831) teaches a polycarbonate resin comprising a polyorganosiloxane copolymer mixture with titanium dioxide (column 6, line 35 through column 7, line 6). Hongo does not teach a light reflection sheet having a thickness of 0.4 to 2mm.

Umeda et al (U.S. 5,391,600) teaches a polycarbonate resin comprising a polycarbonate-polyorganosiloxane copolymer containing a mixture of two or more kinds of polycarbonate resin (column 4, lines 25-41) along with titanium oxide (column 6, lines 32-40). Umeda does not teach a light reflection sheet having a thickness of 0.4 to 2mm.

Okumura et al (U.S. 5,451,632) teaches a polycarbonate-polyorganosiloxane copolymer and a resin composition comprising said copolymer (column 1, lines 7-16 and column 2, lines 5-20). Okumura does not teach a light reflection sheet having a thickness of 0.4 to 2mm.

### ***Response to Arguments***

8. Applicant's arguments of the rejection made under U.S.C. 103(a) as being unpatentable over Hirai et al (U.S. 6,664,313) in view of Nodera et al (U.S. 6,001,929) have been considered but are unpersuasive. Applicant argues neither Hirai nor Nodera

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teaches titanium oxide having a surface acid amount of 10 micromole/g or more and a surface base amount of 10 micromole/g or more. The titanium oxide of Hirai would inherently have a surface acid amount and surface base amount and it would have been obvious to one of ordinary skill in the art to employ the surface acid and surface base amounts of the titanium oxide in any amounts, including the claimed amounts. Applicant further argues only 14 parts by weight of titanium oxide is shown to be successful in each of the 15 examples of Hirai. Examiner maintains the content of titanium oxide is in the range of 3 to 30 parts by weight based on 100 parts by weight of the polycarbonate resin (column 4, lines 50-52 of Hirai).

Applicant's arguments of the rejection made under 35 U.S.C. 103(a) as being unpatentable over Hirai et al (U.S. 6,664,313) in view of Nodera et al (U.S. 6,001,929) further in view of Ekinaka et al (U.S. 6,846,567) have been considered but are unpersuasive. Applicant argues none of the cited references teaches titanium oxide having a surface acid amount of 10 micromole/g or more and a surface base amount of 10 micromole/g or more. The titanium oxide of Hirai would inherently have a surface acid amount and surface base amount and it would have been obvious to one of ordinary skill in the art to employ the surface acid and surface base amounts of the titanium oxide in any amounts, including the claimed amounts.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

### ***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence Ferguson whose telephone number is 571-272-1522. The examiner can normally be reached on Monday through Friday 9:00 AM – 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Sample, can be reached on 571-272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Lawrence Ferguson/  
Patent Examiner, Art Unit 1783

/David R. Sample/  
Supervisory Patent Examiner, Art Unit 1783